



## Systems (TREPS).

**LABORATORY COMPOSITION**

TREL is a computer simulation lab outfitted with a collection of advanced traffic analysis software (traffic simulation, signal optimization, adaptive control, etc.), integrated with a system of traffic control and other hardware.

**PRODUCTS AND SERVICES**

- Onsite support of the FHWA Operations R&D program.
- Evaluation and development of new and existing traffic software systems.
- Application of the CORSIM traffic simulation model and related tools.
- Application of the CID hardware-in-the-loop system.
- Evaluation of DTA prototypes.
- Development of simulation algorithms (ramp metering, signal preemption, etc.).
- Evaluation of Adaptive Control Software (ACS), ACSLite and development of traffic controller interface.
- Identification and assessment of key weather-related parameters and their impact on traffic operations using simulation.
- Utilization of CID in the Signal Preemption Study on State Route 7 in Virginia.

**EXPERTISE**

TREL combines the expertise of traffic engineers, system engineers, and computer science professionals with experience in traffic research, highway safety, algorithm development, traffic simulation, system design, model development, and ITS.

The Turner-Fairbank Highway Research Center (TFHRC) has more than 24 laboratories for research in the following areas: safety; operations; including intelligent transportation systems; materials technology; pavements; structures; and human centered systems. The expertise of TFHRC scientists and engineers covers more than 20 transportation-related disciplines. These laboratories are a vital resource for advancing this body of knowledge created and nurtured by our researchers. The Federal Highway Administration's Office of Research, Development, and Technology operates and manages TFHRC to conduct innovative research to provide solutions to transportation problems both nationwide and internationally. TFHRC is located in McLean, Virginia. Information on TFHRC is available on the Web at [www.fhrc.gov](http://www.fhrc.gov).

This RD&T fact sheet provides concise information about a TFHRC facility.

FHWA-HRT-04-0

**PUBLICATIONS**

**Public Roads Magazine Articles**  
The ARTIS Compendium: FHWA's Electronic Rural ITS Project Tracking System

Atlanta to Showcase ITS Traveler Information  
(Summer 1996)

ATMS Human Factors Experiments Produce Design Guidelines  
(Spring 1997)

Commercial Vehicle Information Systems and Networks (CVISN): The Information

Highway Meets the Asphalt Jungle  
(January/February 1998)

The Customer Driven Development of Human Factors Design Guidelines  
(January/February 2000)

FHWA's Traffic Research Lab (TREL): Searching for Keys to Unlock the Nation's Gridlock  
(September/October 1999)

Innovative Traffic Control Practices in Europe  
(September/October 1999)

Intelligent Transportation Systems in Japan  
(Autumn 1996)

ITS and the Environment

ITS Is Already Paying Dividends  
(September/October 1997)

A More Precise Sense of Where We Are  
(January/February 2000)

Navigating the Future  
(Autumn 1995)

Smart Road, Smart Car: The Automated Highway System  
(Autumn 1996)

Staying in the Loop: The Search for Improved Reliability of Traffic Sensing Systems Through Smart Test Instruments  
(September/October 1998)

Structural Monitoring With GPS  
(Spring 1997)

Surface Transportation and Global Positioning System Improvements: L5 and DGPS  
(January/February 1998)

Technology for Work and Travel  
(Spring 1996)

Traffic-Flow Theory  
(January/February 1999)

WestTrack: Putting ITS to Work  
(July/August 1997)

**RELATED RESEARCH**

TFHRC Human-Centered Systems Research

TFHRC Operations & ITS Research

TFHRC Safety Research

[TEHRC Structures Research](#)

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